M/021/0004
cc: Lynn
Task: 4170

Hecla

June 2, 2011

Mr. Lynn Kunzler
Depart of Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84116

Subject: Final Reclamation at Escalante Mine

Dear Mr. Kunzler:

Attached for your review is the Reclamation Plan for the completion of the remaining reclamation activities in 2011. This work is planned for this early summer.

Please call me at 208.769.4112 if you have any questions.

Sincerely,

Paul L. Glader
Manager – Environmental Services

CC: Ed Ginouvies – BLM, Cedar City

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DIV. OF OIL, GAS & MINING

6500 Mineral Drive, Suite 200 • Coeur d'Alene, Idaho 83815-9408 • 208.769.4100 • FAX 208.769.4107 • www.hecla-mining.com

RECLAMATION PLAN
FOR FINAL CLOSURE OF THE

ESCALANTE SILVER MINE
IRON COUNTY, UTAH

Prepared by:

Hecla Mining Company
6500 N. Mineral Drive, Suite 200
Coeur d'Alene, Idaho 83815-9408

and

Bamberg Ecology LLC
2622 Valentia Street
Denver, Colorado 80238

June 2011

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1.0 OVERVIEW

The Escalante Silver Mine (Escalante) is a closed underground mine formerly operated by Hecla Mining Company that has been reclaimed except for removal of the tailings impoundment perimeter fencing, closure of four monitoring wells in the vicinity of the tailings impoundment, and revegetation of the tailings impoundment access road. The Waste Rock Pile was reclaimed in 2006. This reclamation plan addresses final reclamation of these structures that include four groundwater monitoring wells, a fence enclosing the tailings impoundment, the access road, and Waste Rock Pile (Sheet 1).

2.0 SITE LOCATION AND DESCRIPTION

Escalante is located in southwestern Utah, 38 miles west of Cedar City, Utah, 3½ miles southwest of Beryl Junction and 8 miles north of Enterprise, Utah (Sec 2, T36S, R17W, Salt Lake Baseline & Meridian; Sheet 1). The site is on the southeastern edge of the Great Basin Desert region within the Escalante Desert. The Escalante Desert spans most of Iron County, with a shrub steppe climate that receives an average annual 13 inches (330 mm) of rainfall and 5.9 feet (1.8 m) of snowfall. Vegetation is typical of the region with big sagebrush (*Artemisia tridentata*) dominated semiarid land plant complexes. The area is open rangeland with localized dryland agriculture. The mine site is situated in a gently sloping drainage of the local foothills. No streams, drainage swells, or other water features are within the areas of concern for this plan.

3.0 GENERAL RECLAMATION METHODS

The following sections describe the essential steps to reclamation. These steps include removal of structures, surface preparation, and seeding.

3.1 Structure Removal

Appropriate structures will be removed first following the methods described in each corresponding section and with minimal disturbance to the surrounding landscape. Care will be taken during removal of the fencing and closure of the monitoring wells to not compact soil surfaces.

3.2 Ground Preparation

If any surfaces are excessively compacted, they should be loosened by ripping either with hand equipment in small areas, or a small tractor or excavator for larger areas. Existing soil surfaces on the site are adequate as a growth medium for revegetation as determined by soil nutrient laboratory results (Appendix A). Therefore, no soil amendments will be applied. If added im-

properly, soil amendments in natural landscapes promote invasive and weedy plant species. Erosion should not be an issue with this revegetation effort, since the areas of concern are level or have shallow slopes at most.

3.3 SEEDING

Ideally, seed planting should follow any disturbance from structure removal as soon as practicable and devisable by season. If an extended period of time has passed since structure removal, weed removal/control and fresh grading and ground preparation will need to be performed for the surface to be loose, rough-surfaced, and soft for seed capture. Seeding is optimally timed for late fall after plant dormancy but before winter precipitation or spring after ground thaw. Drill seeding may be done anytime the ground is thawed, but not too wet for equipment passes.

The seed mix provided below is recommended for this Great Basin desert area. Seeding rate for the grass mix is 1-2 lbs/1,000 sq. ft and for the shrub mix is 2 lbs/1,000 sq. ft. Manual seeding rates should be twice the recommended rate.

Recommended Grass Seed Mix[1]

Species	Common Name	% of mix
Pseudoroegneria spicata	Bluebunch Wheatgrass	25
Festuca idahoensis	Idaho Fescue	20
Pascopyrum smithii	Western Wheatgrass	20
Bromus marginatus	Mountain Brome	12
Stipa viridula	Green Needlegrass	6
Oryzopsis hymenoides	Indian Ricegrass	5
Leymus cinereus	Basin Wildrye	5
Poa secunda	Sandberg's Bluegrass	5
Elymus elymoides	Bottlebrush Squirreltail	2

Recommended Shrub Seed Mix

Species	Common Name	% of mix
Artemisia tridentata v. tridentate	Basin Big Sagebrush	40
Chrysothamnus nauseosus	Rubber Rabbitbrush	40
Purshia tridentate	Bitterbrush	10
Ceratoides lanata	Winterfat	10

[1] **Western Native Seed,** P.O. Box 188, Coaldale, CO 81222
Phone: (719) 942-3935 FAX: (719) 942-3605 Email: info@westernnativeseed.com
Sage Country Mix

The access road can be drill seeded at the rates recommended with each mix. Manual seed dispersal, rather than drill seeding, is recommended for small, relatively confined areas (at double the recommended seeding rate). The area is generally flat enough to drill seed, but the small size and remote location may make this seeding method less cost effective. If hand seeded, the soil surface may need to be raked to incorporate the seed. This additional step will need to be field determined based on season and ground surface conditions.

3.4 IRRIGATION

Irrigation is not recommended for the revegetation area. Desert seeds can remain dormant in the soil until the climatic conditions are correct for germination and growth. Irrigation can create water dependant individual plants that will die out once irrigation is removed.

3.5 SUCCESS REQUIREMENTS & WEED CONTROL

The Proposal for Closure of Hecla's Escalante Silver Mine Tailings Facility dated August 25, 1989 by Hecla Mining Company Escalante Unit and submitted to the Department of Natural Resources, Division of Oil, Gas, and Mining, State of Utah does not define vegetative release criteria for Escalante. The revegetation areas will be monitored for a minimum of two years for vegetation establishment. A short report detailing qualitative vegetation condition and weed control measures (if necessary) will be completed for each monitoring visit.

4.0 ACCESS ROAD

The 1.6 acre access road to the tailings impoundment has good vegetative cover except for several weedy and bare patches. A two-track vehicle path will remain for access to the tailings impoundment area. Although not diverse in species richness and with some large weedy patches, the vegetative cover and density match the surrounding landscapes and stabilize the ground surface from wind and water erosion. This vegetation on the main access road is dominated by broom snakeweed. Broom snakeweed is a bushy, short-lived (less than 20 years), native, perennial subshrub and is a common constituent of many early serial sagebrush-grassland, pinyon-juniper, and desert shrub communities.

No structure or debris removal is needed on this road. It is not recommended to disturb the existing shrub vegetation with a ripping and seeding of the entire roadway. However, bare and weedy patches should be addressed. The weedy species are mainly annual - Russian thistle

(*Salsola* sp.), tumble mustard (*Sisymbrium altissimum*), and filaree (a.k.a. storksbill *Erodium cicutarium*) that die each year and reproduce by seed. Either early spring or late fall to early winter seeding will not require weed removal. No soil amendments or irrigation will be used.

Weedy and bare areas will be revegetated. These areas may be drill seeded. If a broadcast seeding method is used, the surface will be ripped to a depth of 3 to 6 inches so the ground surface is left rough and broken. Broadcast seed will incorporate into the soil through surface sloughing. These areas will receive an overseeding of native full-sized shrubs and grasses included in the seed mix.

5.0 CLOSE MONITORING WELLS

A licensed well driller will be contracted to close the monitoring wells in accordance with applicable Utah rules. Once the four monitoring wells around the tailings impoundment are closed, the surface soil will be ripped, if compacted (Section 3.2). The bare ground will then be seeded with the seed mix by hand broadcast method (Section 3.3).

6.0 REMOVAL OF FENCE AROUND TAILINGS IMPOUNDMENT

Removal of the approximately 9,000 feet of perimeter fencing around the tailings impoundment will be accomplished first by detaching and collecting the wires into rolls. The metal posts will be pulled out of the ground with minimal surface disturbance. In addition, this will be accomplished with minimal vehicle passes to not significantly disturb the existing vegetation. All fence debris will be removed from the site. The existing vegetation should recover without revegetation efforts. This is especially true since this disturbance will be narrow and linear, which maximizes the edge effect of re-colonization of limited bare areas by the surrounding landscape.

7.0 WASTE ROCK PILE

The five-acre Waste Rock Pile had earthwork and seeded completed in October 2005. This area has revegetated to an acceptable level as recorded in a Technical Memorandum from Dr. Bamberg to Mr. Glader dated November 26, 2010 (Appendix B). Therefore, no further revegetation work is needed.

APPENDIX A

05/17/2011 19:18 FAX 001/002

USU ANALYTICAL LABORATORIES

Soil Test Report

and

Fertilizer Recommendation

USU Analytical Labs
Utah State University
Logan, Utah 84322-4830
(435) 797-2217
(435) 797-2117 (FAX)
www.usual.usu.edu

ATTN: Paul Glader

Date Received: 12/2/2010
Date Completed: 12/9/2010

Name: Douglas Truman
Address: PO BOX 444

ENTERPRISE UT 84725

Phone: 435-878-2600
County: WASHINGTON

Lab Number: 1001-2580 Grower's Comments: Acres in Field:
Identification: Good Plant Growth
Crop to be Grown: Reclamation

Soil Test Results			Interpretations	Recommendations
Texture		Silt Loam		
pH		7.45	Normal	
Salinity - ECe	dS/m	0.91	Normal	
Phosphorus - P	mg/kg	29	Adequate	0 lbs P2O5/A
Potassium - K	mg/kg	387	High	0 lbs K2O/A
Nitrate-Nitrogen - N	mg/kg	17.7		0 lbs N/A
Zinc - Zn	mg/kg	0.58	Low	5 lbs Zinc/A
Iron - Fe	mg/kg	3.41	Low	
Copper - Cu	mg/kg	0.70	Adequate	
Manganese - Mn	mg/kg	3.88	Adequate	
Sulfate-Sulfur - S	mg/kg	481	Adequate	0 lbs Sulfur/A
Organic Matter	%	1.7		
SAR				

Notes

For further assistance, please see your County Agent — Vernon Parent / Rick Heflebower - 435-634-2691 / -2690
For further information and publications of interest, see the
USU Analytical Lab webpage or Utah State University Extension

Methods Used by USUAL: pH + EC (salinity) + SAR by saturated paste; P + K by Olsen sodium bicarbonate extract – K by AA, P by ascorbic acid/molybdate blue colorimetric; NO3-N by CaC extract + cadmium reduction; Zn, Fe, Cu, Mn by DTPA + ICP; SO4-S by CaHPO4 + ICP; OM by Walkley-Black
Results only reflect the sample received and may not be indicative of actual field conditions.

TE 12/7/10

USU ANALYTICAL LABORATORIES

Soil Test Report and Fertilizer Recommendation

USU Analytical Labs
Utah State University
Logan, Utah 84322-4830
(435) 797-2217
(435) 797-2117 (FAX)
www.usual.usu.edu

Date Received: 12/2/2010
Date Completed: 12/9/2010

Name: Douglas Truman
Address: PO BOX 444
ENTERPRISE UT 84725

Phone: 435-878-2600
County: WASHINGTON

Lab Number: 1001-2581 Grower's Comments: Acres in Field:
Identification: Sparse Plant Growth
Crop to be Grown: Reclamation

Soil Test Results			Interpretations	Recommendations
Texture		Silt Loam		
pH		7.45	Normal	
Salinity - ECe	dS/m	0.9	Normal	
Phosphorus - P	mg/kg	16.9	Adequate	0 lbs P2O5/A
Potassium - K	mg/kg	481	Very High	0 lbs K2O/A
Nitrate-Nitrogen - N	mg/kg	13.8		0-4 lbs N/A
Zinc - Zn	mg/kg	0.39	Very Low	10 lbs Zinc/A
Iron - Fe	mg/kg	3.49	Low	
Copper - Cu	mg/kg	0.83	Adequate	
Manganese - Mn	mg/kg	5.27	Adequate	
Sulfate-Sulfur - S	mg/kg	6.1	Low	10-20 lbs Sulfur/A
Organic Matter	%	1.5		
SAR				

Notes

For further assistance, please see your County Agent -- Vernon Parent / Rick Heflebower - 435-634-2691 / -2690
For further information and publications of interest, see the
USU Analytical Lab webpage or Utah State University Extension

Methods Used by USUAL: pH + EC (salinity) + SAR by saturated paste; P + K by Olsen sodium bicarbonate extract – K by AA, P by ascorbic acid/molybdate blue colorimetric; NO3-N by CaO extract + cadmium reduction; Zn, Fe, Cu, Mn by DTPA + ICP; SO4-S by CaHPO4 + ICP; OM by Walkley-Black
Results only reflect the sample received and may not be indicative of actual field conditions.

APPENDIX B

Technical Memorandum

Date: November 26, 2010
To: Mr. Paul Glader, Hecla Mining Company
From Ingrid Bamberg, Bamberg Ecology

Re: Trip Report for Reclamation Observations of Waste Rock Pile at Escalante Mine Site

This memo provides observations on the Waste Rock Pile at Hecla Mining Company's (Hecla) Escalante Silver Mine (Escalante), near Beryl, Utah, from a site visit on October 14, 2010. The purpose of this observation was to assess the current reclamation conditions of the waste rock pile. Present on site during this inspection were Paul Glader, Hecla Mining Company; Doug Truman, caretaker and former mine employee at Escalante; and Ingrid Bamberg, Bamberg Ecology. Escalante is located about 5 miles North of Enterprise, Utah in Iron County, at 1420 South-2400 West, Beryl, Utah 84714 (Sec 2, T36S, R17W, Salt Lake Baseline & Meridian). This memo is separate from the remainder of the Escalante Silver Mine observations since the Waste Rock Pile has been released from financial bond.

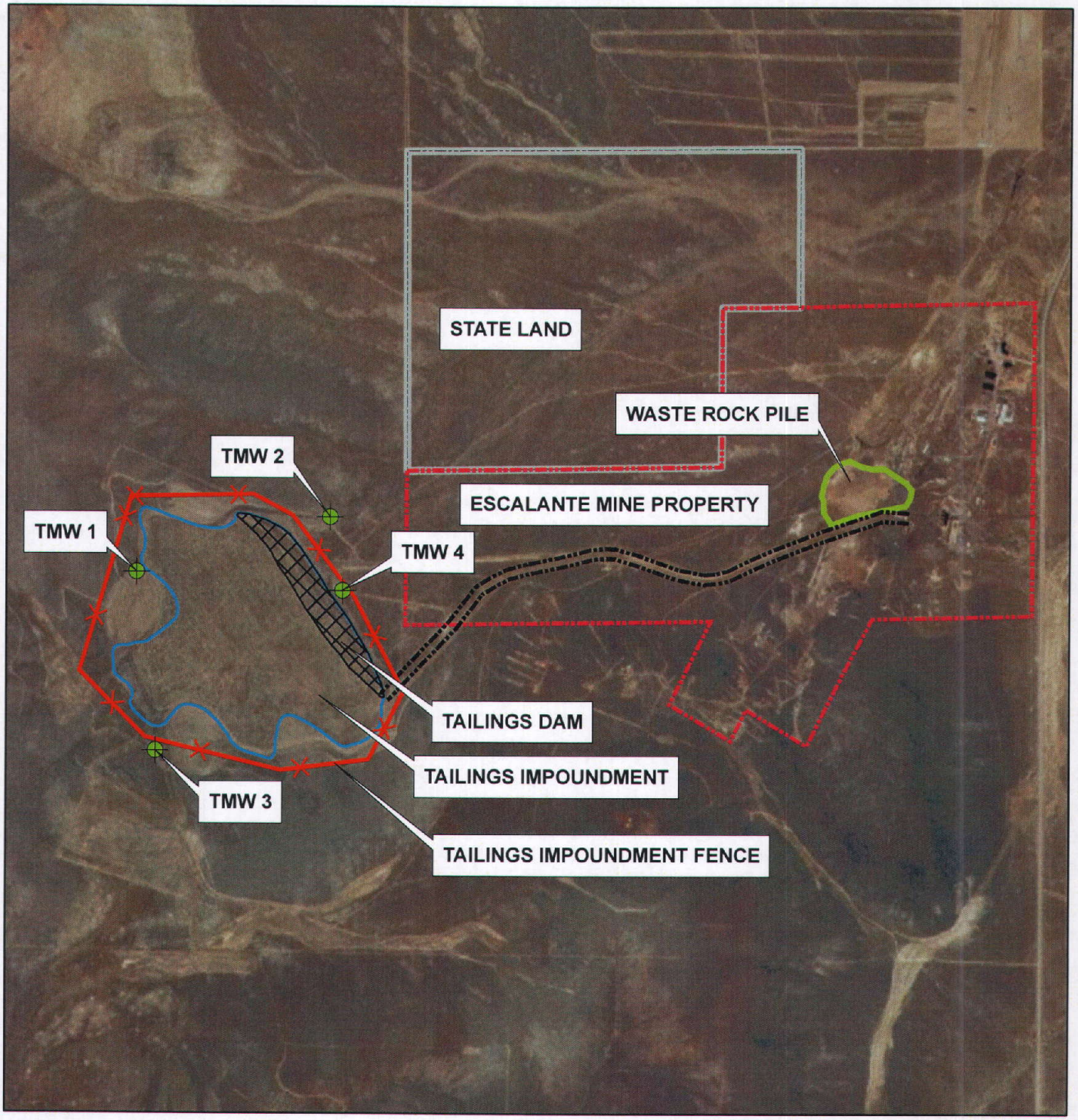
Escalante is located in southwestern Utah on the southeastern edge of the Great Basin Desert region within the Escalante Desert. The Escalante Desert spans most of Iron County, with a sagebrush shrub steppe climate that receives an average annual 13 inches (330 mm) of rainfall and 5.9 feet (1.8 m) of snowfall. Vegetation is typical of the region with big sagebrush (*Artemisia tridentata*) dominated semiarid land plant complexes. The area is open rangeland with localized dryland agriculture. The mine site is situated in a gently sloping drainage of the local foothills.

The Waste Rock Pile had earthwork and seeded done in October 2005, five years prior to this inspection. The surface of the Waste Rock Pile had a total ground cover of approximately 40 to 45%. Of this, approximately 10 to 15% of the cover was grasses and native forbs including a unidentified mint species, beard's tongue (*Penstemon* sp.), and wildrye (*Elymus cinereus*). Approximately 30% of the cover was by invasive species (weedy species) and included cheatgrass (*Bromus tectorum*), Russian thistle (*Salsola kali*), and tansy mustard (*Descurainia pinnata*).

The Waste Rock Pile has revegetated to an acceptable cover of desirable species for this desert region. The weedy species cover is moderately high, but not unusual for a disturbed reclamation site.

Photo 1. South slope of the Waste Rock Pile, Escalante Site, October 14, 2010.

Photo 2. North slope of the Waste Rock Pile in foreground, Escalante Site, October 14, 2010.



Legend

- TEMPORARY MONITORING WELL
- TAILINGS IMPOUNDMENT FENCE
- ROAD TO TAILINGS IMPOUNDMENT
- ESCALANTE MINE PROPERTY
- STATE LAND
- TAILINGS DAM
- TAILINGS IMPOUNDMENT
- WASTE ROCK PILE

0 750 1,500 3,000

1 inch equals 1,500 feet

N

bamberg ecology

FINAL CLOSURE RECLAMATION ESCALANTE MINE

Sheet No.	Drawn By: HPP	Checked by: IJB
1	Date: June 1, 2011	File: finalClosure.mxd